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ABSTRACT

This document presents a report devised in 1962 for the planning of expansion of postsecondary education in Ontario through 1970. The major thrust of the report emphasizes the need for expansion with improved excellence of educational quality. Presented are enrollment projections; fields of study likely to be in demand; physical locations needing new postsecondary institutions; the possibility for expanding existing universities; the need for postsecondary institutions such as teachers colleges, institutes of technology, and schools of nursing; staffing problems and recommendations; the structural organization of postsecondary education to 1970; and the possibilities and problems of financing such widespread expansion. (HS)

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POST-SECONDARY EDUCATION IN ONTARIO 1962-1970

Report of the Presidents of the Universities of Ontario to the Advisory Committee on University Affairs

May, 1962

Revised January, 1963

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STUDY PREPARED BY
THE COMMITTEE OF PRESIDENTS OF
PROVINCIALLY ASSISTED UNIVERSITIES

HE 003 572

This study was undertaken at the request of the Advisory Committee on University Affairs by the Committee of Presidents of Provincially Assisted Universities, based on information supplied by the Advisory Committee to the Committee of Presidents. The study was prepared by a sub-committee of the Committee of Presidents under the Chairmanship of Dr. J. J. Deutsch, and was presented to the Advisory Committee by Dr. C. T. Bissell, who is the Chairman of the Committee of Presidents.

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1. INTRODUCTION

In considering the problem with which we have been faced—the provision of post-secondary education for greatly increased numbers of students—this committee made several assumptions that have governed its thinking. The first of these assumptions is that, despite the wealth of careful and detailed statistical projections of student population with which we have been furnished, it is not possible to foresee with certainty the shape of things to come; therefore any system that is devised must be flexible, amenable to modification in the light of unexpected developments. Secondly, the burden of expense will inevitably be great; therefore any system that is devised must observe the utmost economy, in both capital and maintenance costs, that is compatible with its successful operation. Thirdly, the time that is available to prepare for the influx of students is very short, and therefore our theories of what is ideally desirable must be subject to practical considerations of speed. Finally, the quality of education must be maintained; to debase academic standards would be to break faith with the young people, to leave them ill-prepared for the world they will live in, and to endanger the social, economic and intellectual health of the Province. Moreover, in the struggle to provide reasonably good higher education for so many, there is a danger that we may fail to provide excellent higher education for the best ten or twenty per cent of those who come to the universities. Yet our future productivity, our national security, and our health depend on the full development of the talents of this ten or twenty per cent. Not only do technological and social changes make this more important every day, but the pressure of numbers in the universities of other countries makes it more important that we provide for a large proportion of our best people in our own universities. We cannot much longer rely on England, France, and the United States to provide for our best; indeed we owe it to the world to provide for more of our best and for many more of the best of other countries.

We realize that, besides the traditional responsibility of universities to preserve, augment, communicate and transmit the manifold cultural heritage of the race, additional social responsibilities have been laid upon them: to fill the needs of the modern state for graduates, especially in those fields where trained intelligence is vital to the welfare and security of society; and to make higher education available to all who are qualified and eager for it, so that they may be knowledgeable, self-reliant citizens of the state and of the world. To reconcile and to discharge these responsibilities under the conditions that are forecast for the remainder of this decade will be a task of the first magnitude for the universities of this Province.

2. NUMBERS

The committee made a careful examination of the various projections of university enrolment to 1970 that had been prepared for the Advisory Committee on University Affairs by Dr. R. W. B. Jackson (Appendix 1). The committee thought it likely that Dr. Jackson has understated the numbers who will complete Grade 13, especially in the later 1960's, because of the extent to which he has flattened out the survival rates between the high school grades; a more constant trend might be expected. On the other hand the committee believed that in Dr. Jackson's highest projection—Estimate 6—the proportion of the Grade 13 enrolment who would go on to further academic work might have been overstated: there are inherent limitations of intelligence and aptitude for higher academic studies in the population, and the committee felt that 22.9% of the age group might be too high a figure—although they recognized that this agrees closely with Dr. E. F. Sheffield's forecast for the whole of Canada, that all forecasts of this nature so far have erred on the conservative side, and that Estimate 6 may therefore be uncomfortably close to the truth. The committee concluded that they should take Estimate 5 as a minimum estimate, and work with these figures (i.e., 55,000 full-time undergraduate students in 1965, 91,000 in 1970), bearing in mind that 100,000 by 1970 is a definite possibility. They could not, with any sense of responsibility, use lower figures than those in Estimate 5. They urge the importance of reviewing these projections a year from now.

The committee noted that the first "shock wave," the greatly increased numbers finishing Grade 10 in June, 1962, will complete Grade 13 in 1965, and will be followed immediately by a further major increase in 1966. There may well be as many *freshmen* in 1966 as there are *students* today. The years from 1968 to 1972 will be relatively stable, but from 1972 to 1980 there will be very substantial increases every year. In

other words we face an unremitting expansion, of spasmodic intensity, with no contraction in sight in the foreseeable future, and with major crises just three and four years ahead.

3. NATURE OF ACADEMIC PRESSURES

The committee examined the trends in post-secondary enrolment in Ontario in recent years in order to find out what kind of further education most of the students will probably want to undertake, and also made a general survey of such information as is available about the future needs in different occupations, to find out what kind of further education will be most likely to assure the students of employment.

Enrolment in Ontario universities increased by 67% in the last seven years. The pattern of expansion in Ontario (which is very similar to the pattern for Canada) was roughly as follows (Appendix 2): Law has dropped; Engineering and Architecture have vacillated; Business, Social Work, Household Science, Forestry, Nursing and Veterinary Medicine have increased slightly; Physical and Health Education, Agriculture, Education and Library Science have increased considerably. Medicine, Dentistry and Pharmacy are at the limit of the available facilities, and have risen slightly as the facilities have expanded. The really formidable expansion has been in Arts and Science and in Graduate Studies: enrolment has increased by 123% in Arts and Science, and has doubled in the graduate schools. Turning to the non-university post-secondary institutions: in the teachers' colleges, enrolment has settled down after a notable sixfold expansion since the war; in hospital schools of nursing it has increased slightly; and in the technical institutes it has doubled—in some cases these institutes are now at the limit of their capacity.

As far as the demands for manpower are concerned, it appears that Arts and Science graduates are needed, and will be needed increasingly, in government, industry, teaching and many other fields, with a premium on those who have taken honour courses and postgraduate courses. The acute shortage in the high schools of the Province of specialist teachers in mathematics, science and the humanities is well known. The shortage of highly-trained scientists in industry is serious: the committee were told that six solid-state physicists will graduate from Canadian universities this year, whereas sixty are needed; such examples could be multiplied. All the health sciences have spelled out in recent months their very considerable needs at both the professional and technological levels. The demand for social workers and Physical and Health Education graduates will increase with governmental emphasis on welfare and physical fitness. Engineers will be in great demand, and this demand

will be even more acute in the case of engineering technologists. Generally speaking, the professional, technical, clerical and administrative categories are expanding. The employability of individuals will depend on the degree of their skill and aptitude. In view of this, the rising numbers in Arts and Science make sense; for a basic liberal education is highly relevant to the kind of world we are moving into, and provides perhaps the soundest foundation for specialized training and re-training for such a world of constant change and innovation.

Examining the existing facilities for post-secondary professional education, the committee noted that Engineering has a good deal of unused capacity at present; staff will be needed, but the present and planned physical capacity will be adequate for several years. The law schools also have adequate capacity for some years. In the medical sciences there is clearly a need for additional capacity—another Faculty of Medicine, of Dentistry, and of Pharmacy will be needed in this Province by 1968 or 1969, along with facilities for training technologists, technicians, therapists and nurses. Social Work and Physical and Health Education will need more training facilities. With the exceptions noted above, the professional schools in the existing Ontario universities will be able to absorb the probable demand and produce the necessary supply of professionally trained people during the next few years, provided that they have the resources to augment their staff and equipment as the necessity arises. For the sake of economy and effectiveness, the new professional faculties (of medicine, etc.) should be attached to one or more of the existing universities, in centres where adequate clinical facilities are available. We believe, therefore, that there is no need to establish another comprehensive multi-faculty university in Ontario in this decade.

On the technological side, the picture is different. We shall make specific recommendations later, but in this general survey it is sufficient to say that there is need for drastic reorganization and expansion of the facilities for technological education.

4. NATURE OF DEMOGRAPHIC PRESSURES

The committee noted from the population tables supplied by Dr. Jackson that the areas in the Province where the greatest increases in the student population will take place are the following, listed in order of magnitude of the increase:

(1) Metropolitan Toronto
(2) Hamilton—St. Catharines—Welland—Niagara Falls
(3) Ottawa
(4) London—Windsor

(5) Kitchener–Waterloo–Galt–Guelph
(6) Sudbury–North Bay
(7) Lakehead
(8) Peterborough

(Appendix 3 shows the total estimated 18- to 21-year-old population in 1970 in eleven groups of counties. The tabulation above is based on the estimated increase in this age-group between 1961 and 1970 and the "survival rates" of the pupils through the secondary schools between 1957 and 1961.)

In all its plans for the expansion of universities and the establishment of new institutions, the committee has kept these pressures in mind. The mobility of university students is fairly high: the percentage of the present first-year students whose home is in their university city and its suburbs ranges from 90% at York to 11% at Queen's, the median being 53%. This is a good tradition; a university that drew all its students from its own environs would become parochial, and there are undoubted educational advantages to having at least a proportion of the students in every institution in residence. However, in suggesting the location of new institutions we have had in mind the concentration of students within regions where commuting is possible, so that the amount of money that will be required for residences is minimal. It will be necessary to build some residences; the sheer size of Ontario enforces mobility upon the students from many parts of the Province, and local housing is not inexhaustible, and sometimes not very desirable. If money could be loaned for residential construction at low interest, as it is in the United States, the cost over a period of years would not be very great.

The committee noted that the provision of free railway fares for students in non-university centres (which has brought immeasurable benefits) has had the effect of keeping enrolments low at Sudbury and the Lakehead, because students from the hinterland can travel to a university in the southern part of the Province at no greater expense, and they will have to live away from home in any case. Next to York University, Laurentian and Lakehead have the largest percentage of students from the immediate locality (79% and 73%). The committee certainly did not want to restrict students to the university closest to home, but wondered if the subsidizing of railway fares should be modified so that Laurentian and Lakehead may become more potent educational centres for those areas of the Province.

The committee considered the advisability or otherwise of imposing higher fees upon non-residents of Ontario who attend Ontario universities. The University of Ottawa in 1961 drew 33% of its freshmen from Canada outside Ontario, Queen's University 8%, and the Lakehead and

Carleton 5% each. On the other hand, many Ontario students attend universities in Quebec, Manitoba, and elsewhere, so that the result of taxing non-residents might be to stir up ill-feeling with little net gain. American students made up 9% of the freshman class at Assumption, and 29% of Assumption's special pre-university year, and Toronto has many American students, mostly at St. Michael's College. Again, it is believed that the reciprocity that now exists is probably advantageous to Ontario.

All the universities regard the teaching of students from the less developed countries abroad as a welcome responsibility, a major contribution to international understanding, and acknowledge that the atmosphere of a campus is the richer for their presence. By 1970 there may be from five to six thousand of them in Ontario universities, in the most expensive courses—the graduate and professional schools. This service is an essential part of Canada's foreign policy. The committee therefore regards this responsibility as one which the academic community shares with the Federal Government, and believes that the education of foreign students should not be a heavy burden on provincial funds. An arrangement should be made to supplement the scholarships that bring these students here by a subsidy to the universities, as was done in the case of the veterans—a subsidy that would more nearly cover the cost of their education.

5. EXPANSION OF EXISTING UNIVERSITIES

From the above discussion of regional needs it is evident that each of the existing universities, with the sole exception of Queen's, is in an area where a large increase of local students may be expected. All the major universities except Queen's and Toronto have doubled or tripled their enrolment in the last seven years (which is no mean undertaking), and most had anticipated a period of consolidation to follow this expansion. Nevertheless the committee asked all the major universities to re-examine their expansion plans in the light of this emergency with which we are faced, and to estimate the maximum numbers they could conceivably accommodate by 1965, and by 1970.

The committee found a general willingness on the part of the universities to stretch their enrolment to the utmost if this were required in the public interest—and, of course, if the financial resources were available. In some cases, however, the prospect of a sizable future expansion depends on the possibility of immediate action—to acquire land, for instance, and to undertake the necessary planning—and it was emphasized that their acceptance of this further larger increase of enrolment would be contingent upon immediate, adequate and sustained financial support for both capital and operating purposes. It would be necessary

for the universities to be given an immediate undertaking of long-term support.

In the case of York University, the committee was of the opinion that the numbers put forward as the highest goal in the submission made by York University to the Advisory Committee on University Affairs (1,316 students in 1965, 4,014 in 1970) are unrealistically low, in view of the tremendous pressures in the Metropolitan Toronto area. The committee was told by the President of York University that if it were a matter of urgent public policy, a greater rate of expansion would be attempted by York (with the understanding that the financial problems would be met). (Subsequently the Senate and the Board of Governors of York University have agreed, in view of the fact that the greatest pressure for university places will be in Metropolitan Toronto, to provide 7,000 places by 1970.)

The committee had been provided with the universities' previously estimated figures for 1965 and 1970, on the basis of which the total enrolment for 1965 would have been 42,000, and for 1970, 58,000. We are now prepared to say that, if the university governors believe this to be a sound and reasonable action to cope with the present emergency, the Ontario universities will find places for 49,000 undergraduate students in 1965 and for 74,000 undergraduate students in 1970 (Appendix 4). This is a maximum effort, and, as mentioned before, it presupposes immediate, adequate, and sustained financial support.

The figures given above are for undergraduate enrolment only, in Arts and Science (honour and general) and in professional schools. In round figures the present undergraduate enrolment is 30,000, and the present full-time staff is 2,500. For this undergraduate expansion within the existing institutions, at the prevailing staff-student ratio of 1:12, the existing universities will be obliged to find 1,600 new members of staff by 1965, or in other words to increase their present staff by 65%. By 1970 the existing universities will be obliged to find a further additional 2,100 new members of staff, which will mean a total increase of the present staff by 250%. These figures do not include any staff for new institutions, or for additional graduate work, or the normal replacements made necessary by deaths, retirements and resignations.

6. OTHER POST-SECONDARY INSTITUTIONS

If the universities succeed in taking in 49,000 undergraduate students by 1965 there will be, according to Dr. Jackson's Estimate 5, about 6,000 students not accommodated, and 16,000 not accommodated in 1966. By 1970, if the universities find it possible to go to 74,000 undergraduates, there will be 20,000 to 30,000 not accommodated. The committee

proceeded to look at the various post-secondary institutions other than universities, to see whether it would be possible to divert any sizable number to these institutions; whether, if such institutions could be given greater prestige and status in the community, they could draw off a proportion of those who would otherwise be anxious for a university degree.

The committee was aware that the numbers expected to finish the full high school course are in excess of the estimates of prospective university students: double, in fact, if Estimate 5 is accepted. This means that besides the 91,000 we have been thinking of as our total problem in 1970 there will be another 91,000 who have been enrolled in Grade 13, a large proportion of whom will be looking for further training at some post-secondary institution. So we cannot commandeer the entire post-secondary system to help us with our problem; on the contrary, the demand from these other students for some form of post-secondary education might be much greater, at least numerically.

6.1 Teachers' Colleges

It should be made clear at the outset that the committee fully recognizes the direct responsibility of the Department of Education for the training and certification of teachers. However, since all forms of post-secondary education come within the committee's terms of reference, we could scarcely pass over so important a field as the training of teachers.

The committee has been informed that 5,000 to 6,000 elementary school teachers must be graduated from the Teachers' Colleges each year for the foreseeable future (which the committee regards as a low estimate), and that two or three new Teachers' Colleges are to be built, and some of the present ones enlarged. We understand that, as more people apply for the one-year course from Grade 13, the two-year course from Grade 12 will gradually be eliminated; that there is no official plan at present to lengthen the one-year course, but that teachers will be encouraged to continue their professional development after graduation from a Teachers' College.

The committee realizes (only too clearly) what the Department of Education has been faced with in getting the tidal waves of students through the elementary schools. From now on, if the numbers of applicants for teacher training rise from adequacy to abundance, it will be possible to take a longer view of the qualifications that ought to be required of people in this profession. A one-year course after secondary school is a minimal requirement, compared with the preparation that is obligatory in most English-speaking jurisdictions. If more academic preparation is desirable, the committee suggests that it should take place before, not after, the student graduates from a Teachers' College and

goes to work—if only for the sake of greater maturity among those who must make decisions affecting children and the very young.

The committee has been told that the profession is in favour of an academic preparation that would include some work in the liberal arts at the university level, and that they would probably be dissatisfied with either an extra year in high school or an extra year at Teachers' College. The committee is aware that the Ontario universities have been averse to accepting any responsibility for the professional preparation of elementary school teachers as part of a university course. But we know that the universities are willing to assist in the academic preparation of elementary school teachers. We have neither the time nor the competence to work out detailed suggestions as to what the sequence, or combination, of academic work and professional training should be—this would require an extended period of study. We have, however, kept the elementary school teachers in mind in making suggestions about the establishment of new institutions. Above all, we are trying to make genuine liberal arts education at the university level available to all who are able to profit from it. Therefore, if the Department of Education were to decide to set the admission requirements for elementary school teacher training at one, two or three years of liberal arts beyond the secondary school, we should plan to have the facilities to take care of them.

The committee believes that there is a need for study and co-ordination of the training of both elementary and secondary school teachers. We note that a committee is now studying the training of secondary school teachers, in isolation from the elementary side of the picture. We believe that the problem of the education of teachers should be looked at as a whole, and that the role of the universities in such education should be re-examined, particularly in view of the suggestion that new institutions be established in London and Kingston in the near future. The committee realizes that the tendency for more pupils to complete the highest grades in the secondary schools has aggravated the shortage of specialist teachers, and that the provision of specialist teachers in greater numbers will add to the universities' burden of honour and graduate work.

However, in the immediate context of finding means to relieve the pressure on universities i 1965 and thereafter, our consideration of the Teachers' Colleges has certainly done nothing to reduce our problem.

6.2 Institutes of Technology

The committee was informed that the present enrolment in technological institutes in Ontario is 3,800, and that the present plans are to raise the accommodation to 6,000, with a new institution at Kirkland Lake, a new building at Ottawa, and the addition to the Ryerson Institute at Toronto.

The committee was not told how quickly these plans are to be implemented. Unless the enrolment of 6,000 is to be reached in a few years and a further expansion is to take place before 1970, this proposal, in the committee's opinion, will be quite inadequate for the needs of the Province. Efficient industrial activity to-day is based to a great extent upon the skills of engineering technologists, and as industrial activity expands the shortage of technologists will become acute. Fewer will be obtainable from Europe, and we will be unable to prevent a substantial net loss to the United States. It is not too much to say that the progress of industrial development in Ontario in a few years' time will be hamstrung if we fail to raise our sights in technological education. Yet the institutes at Hamilton and Toronto may be turning away well qualified applicants this fall for want of space.

Medical technologists of many kinds will be needed, if—as seems likely—medical services are extended and medical research is intensified. In this connection it is fair to say that some diploma courses of a technological nature which the universities have been obliged to offer ought to be taken off their hands; for example, they could be offered by institutes specializing in medical technology.

Technological careers for women should be developed, not only in recognized fields such as dietetics but also in industrial design, industrial chemistry and computer programming. Another field where graduates of technological institutes will be greatly needed is as teachers in the new vocational stream in the secondary schools. The existing arrangements for training vocational teachers appear to be unsuitable and inadequate, and the whole programme should be reviewed in the light of modern conditions and trends.

We have mentioned the need for technologists; it is relevant to point out that technicians will also be needed in very large numbers by industry and by the medical sciences. But skills at the technician level will be subject to rapid obsolescence. The most useful service the school system can render to the pupils who are potential technicians—those who have little academic ability—is to give them as much academic work as they can possibly be cajoled into taking; because their ability to communicate, to exercise judgment, to master new situations and to acquire new skills will greatly reduce the risk of frequent and prolonged unemployment. This is a fruitful field for experimentation with mechanical teaching aids; the teaching machine, with programmes geared for this purpose, might reach the mind that is repelled by books. Technicians' skills can be taught at any age, and in the interests of the young people the teaching of these skills should be preceded by all the academic education the pupils can absorb.

We recommend strongly that a capacity of the order of 18,000, rather than 6,000, be the goal for the expansion of technological institutes by 1970. We recognize that facilities for institutes of technology are very expensive, and we suggest that the proper authorities give consideration to converting a number of the new vocational schools into Institutes or Colleges of Technology. We believe that some of the existing institutes should eventually develop into Colleges of Advanced Technology. As we said above in connection with Teachers' Colleges, we are in no position to study this complex subject in detail. If the right decisions are to be made, the authorities who make them must be provided with appropriate information and expert advice. We think that the relations of vocational secondary schools and technological institutes—indeed, the entire development of technological and technical education in Ontario—should be investigated in depth by a competent and representative group, backed up by a fact-finding and research staff. Direction, co-ordination and research are sorely needed in this field.

6.3 Hospital Schools of Nursing

The committee noted that the enrolment in hospital schools of nursing is about 7,000, and that the projected enrolment is 9,000 to 10,000 by 1965 and 10,000 to 13,000 by 1968. We are informed that about one-third enter from Grade 13, but not necessarily all from the level of Grade 13 with which we are most concerned. No doubt there will be recommendations about the training of nurses and medical technologists, and possibly about the financing of such training, from the Royal Commission on Health Services.

6.4 Other

The committee did not consider business schools, colleges of art, colleges of optometry, chiropractic colleges, private trade schools, etc. In this group only about four or five thousand are enrolled at present, and we have no way of knowing how these institutions are likely to grow.

On the whole, the committee decided that no development that they could visualize as being feasible in the other kinds of post-secondary education was going to affect the pressure on the universities to any noticeable extent whatever.

7. ADDITIONAL INSTITUTIONS AT UNIVERSITY LEVEL

Still being left with at least 6,000 potential undergraduates outside the universities in 1965, over 10,000 in 1966 and 20,000 to 30,000 in 1970, the committee discussed the kind of new institutions at the university level

that should be established in the Province. It had already been agreed that they should be located where the student population will be greatest; that they should not be universities at the start, although some might develop into universities in the 1970's; and that their main function to begin with should be the offering of general education in arts and science. (The committee distinguished between science as a concentrated honour course, producing scientists, and science as part of the background of an educated citizen, and agreed that the latter concept was appropriate to the new institutions.)

The committee considered several possibilities: the addition of a Grade 14 to the high school system; the conversion of teachers' colleges and technological institutes into composite junior colleges; the compression of the thirteen school grades into twelve and the establishment of junior colleges giving two years beyond the new Grade 12; and the establishment of three-year liberal arts colleges in affiliation with existing universities.

7.1 The committee considered the suggestion of adding a fourteenth grade to the secondary school system. The committee could not recommend this course of action for the following reasons: it shifts a part of the burden of further education to a secondary school system which is already seriously lacking in its numbers of specialist teachers—a shortage which, as mentioned above, will become a matter of even greater concern with the growing tendency of more pupils to complete the high school course; and it places a year of advanced work (which, to be useful at all, would need to be at the university level) under the control of local boards of education whose qualifications to organize and direct university work are open to question.

7.2 One possibility that was brought forward was to convert some of the technological institutes and vocational schools into composite two-year junior colleges, admitting students from Grade 13, not giving a degree, from which good students could transfer to an appropriate university course with advanced standing—as Ryerson students can now transfer to Toronto. In the Metropolitan Toronto area one could take Ryerson as a prototype and establish similar composite junior colleges in affiliation with Ryerson, all to come under the aegis of the Advisory Committee on University Affairs; in Hamilton this development would centre around the technological institute there; and so forth. It should be possible to co-ordinate the work of Teachers' Colleges and university extension divisions with these composite junior colleges.

The advantages of co-ordinating existing educational activities are

evident. But the committee was dubious about the two-year colleges, believing that they would be regarded as an inferior substitute for degree-granting institutions and would fail to win public acceptance, or else that there would be an overwhelming demand to add a third year and grant a degree. The useful terminal programmes of the technological institutes would then be disturbed for the sake of a semi-technological degree programme of questionable quality. The economies to be achieved by starting with an existing plant instead of putting up new buildings were recognized, but it was pointed out that Ryerson and Hamilton are already operating at full capacity, and that the present staff has a teaching load about half way between a university load and a high school load, and could not handle any sizable influx of students. The committee could not recommend this alternative as the general solution to the problem.

7.3 A more radical suggestion was the following: the thirteen primary-secondary grades should be reduced to twelve grades covering the same amount of work. (It is often said that the present system does not make good use of the available time.) A large number of junior colleges should then be established, in affiliation with the existing universities, giving two years' work after the new Grade 12 and conferring a new degree, perhaps a Baccalaureate of Secondary Education. The Teachers' Colleges should be converted into junior colleges, and enlarged to include a greater enrolment, and the Baccalaureate of Secondary Education should be required for elementary school teaching; arrangements would have to be made for the teachers to combine their observation, methodology and teaching practice with their academic work. The junior college should offer both terminal and transfer programmes, and the good "transfer" students could go on to the parent university for a further two years to obtain an honour B.A. degree. The course in the technological institutes should also be two years from the new Grade 12, and would lead to the Baccalaureate of Secondary Education. This system would produce better educated elementary school teachers (which would be a boon to the whole educational process); it would screen out the academically unfit before they were ever admitted to universities; and it would satisfy those whose sole concern is to get a degree.

It was pointed out that if this alternative—essentially the American junior college system—were accepted, we might have much larger numbers to deal with, since (*a*) with only twelve years in school, there would be larger numbers reaching the end of their schooling sooner; and (*b*) junior colleges of the type described might appeal to a larger proportion of those who complete secondary school work. Obviously, if the junior

colleges were popular, they would have to be built on a very large scale indeed. Also, it would be necessary for the universities to reduce their estimates of the maximum numbers they could take directly from the schools, because they would have to have room for the transfer students in the final two years of honour courses.

On the other hand, the question was raised whether junior colleges need, or deserve, to be popularized in Ontario at all. Our school system builds up to Grade 13, which, with all its faults, has definite, measurable standards of excellence; the junior college became necessary in the United States because of the very wide variations in the standards of the secondary schools. The introduction of junior colleges raises problems of financing, control, and intrinsic quality. As regards the combination of terminal and transfer courses, it was pointed out that the American experience in general has been that two-thirds of the students embark on transfer courses leading to university work, rather than on the vocationally-oriented terminal courses for which many of them are better suited, and that only one-third do in fact transfer to universities. It was also pointed out that if the junior colleges were sponsored and administered by universities, the universities would be making themselves responsible for vocationally-oriented terminal courses—a function which they are possibly unwilling and probably unable to perform properly.

The committee was convinced that there was a need for a revision of the elementary-secondary curriculum, but that the simple process of excising one of the elementary or secondary grades and redistributing the content among the others would be educationally unsound. They believed that investigations should be made by a body such as the proposed Institute of Curricular Development which is currently under study by the Department of Education. It is a question whether it is better to curtail the high school programme or to enrich it: proposals to inaugurate a departmental Grade 12 examination and to develop Grade 13 into a year when fewer subjects are studied with greater depth and flexibility are already before the authorities.

Since this suggestion of compressing the school programme into twelve years and establishing junior colleges offering two-year terminal and transfer programmes and conferring a degree other than the B.A. will involve a basic reorganization of the curriculum in the elementary and secondary schools, the committee is unable to recommend it at present in view of the shortness of time available to meet the situation of 1965. Moreover, the committee has serious doubts about the wisdom of grafting the junior college into the present educational system of the Province of Ontario. We do urge that the proposed Institute of Curricular Development should be established and encouraged to under-

take research into the entire school curriculum. It is pointless to incur great expense for post-secondary education without at the same time making sure that elementary and secondary education are as good as we can make them.

7.4 A further suggestion was to establish several three-year liberal arts colleges, each associated with one of the existing universities, giving a three-year course beyond Grade 13 which would qualify the graduates for the general degree of the parent university. The colleges would either have a charter which would limit them to the offering of a general arts and science curriculum, or they would be incorporated as corporations without share capital under The Corporations Act. They need not be owned by the parent university—in some cases local administration is preferable for buying property and letting contracts, and is more likely to enlist local support, so that each college may need a local Board of Governors. The affiliation would be academic. During their early years they would follow a curriculum approved by the parent institution, and draw on its help in planning buildings and securing staff. No doubt one or more of them will eventually develop into independent universities, as Assumption and Waterloo have done. But in the early stages affiliation is regarded as a necessary guarantee of sound academic standards, a device to achieve speed, and a means of making the new colleges more attractive to good staff members. A good man is more likely to be content to teach undergraduates in an affiliated college if he has the opportunity of giving graduate courses and pursuing his own researches at the parent university. Affiliation, developing into independence, has been the general pattern of university formation throughout the British Commonwealth.

Under this proposal, two liberal arts colleges would be built in the Metropolitan Toronto area, one east and one west of the city; these would be affiliates of the University of Toronto. One would be built in the Welland-St. Catharines area, affiliated with McMaster University. It is expected that, with good planning and adequate staff, each would be able to take in at least 1,000 students by the fall of 1965, and accommodate a considerably larger enrolment by 1970.

By 1965, consideration may have to be given to the institution of arts courses at the Ontario Agricultural College. It is recognized that the University of Toronto, with two colleges to manage in Metropolitan Toronto, would find it exceedingly difficult to assist the Ontario Agricultural College in starting work in arts for several years ahead. It must be remembered that any university that takes responsibility for one of these colleges is assuming a considerable burden on both the academic and administrative staff.

The committee recommends this alternative, believing that it will offer the best preparation to the largest number of young people with the least expenditure of public funds and the greatest assurance of the maintenance of academic standards, especially in view of the critical situation *vis-à-vis* university staff.

8. STAFF

The problem of obtaining competent staff in sufficient numbers quickly enough to cope with the expansion haunted the committee throughout its deliberations. Indeed, the decision to work towards an enrolment of 91,000 or any other figure cannot properly be taken unless it is reasonable to expect that adequate numbers of qualified staff will be available to provide instruction for the students.

We shall have 20,000 more undergraduates in 1965, and no matter what kind of institution we put them into, someone will have to teach them. A proportion of 1:12 has been mentioned earlier in this report as the prevailing ratio of staff to students. Such ratios are of dubious validity, because they take little or no account of part-time staff. By way of illustration: in 1961–62 eleven universities reported to the Ontario Government a total full-time staff of 1,924 and a total undergraduate and graduate enrolment (excluding Theology) of 27,853. There were also 173 full-time staff members in Arts (not Theology) in the federated colleges of these universities, bringing the full-time staff to 2,097. A staff of 2,097 for an enrolment of 27,853 works out at 1:13. But if proper allowance were made for part-time staff the ratio would be more like 1:11. Taking the University of Toronto as an example, there were 422 part-time professors, associates and instructors, and over 700 demonstrators, teaching fellows, etc.; about one-fifth of the budget for academic salaries was for part-time staff. The use of part-time staff at the other universities appears to be less, proportionately, than at Toronto, but it is not negligible. We shall have to keep the part-time element in mind, for it is likely that we shall depend upon part-time instructors even more in the future than we have done in the past; so that any ratio we choose as a goal must allow for the employment of part-time staff.

Moreover, the "mix" of staff, and of students, has a bearing on the numbers that will be required. Nearly half of the reported full-time staff in 1961–62 (45%) are senior people, i.e., professors and associate professors. Almost certainly we shall not be able to maintain this proportion of senior members of staff. We shall have to use every device to spread their talents to the best advantage, and this will involve larger numbers of junior people, and of non-academic staff.

The students presently enrolled are one-tenth graduate students, two-thirds honour arts and science and professional courses, and about one-quarter general arts and science. Considering only the undergraduate projections, one would hope for some relief in the problem of providing staff from the fact that the student "mix" will include much larger numbers taking liberal arts courses.

But in order to get the staff at all we shall have to make a major effort to enlarge our graduate schools. This in itself will require a large immediate increase in staff. The full-time staff of the eleven reporting universities has been increasing at a leisurely pace (1,511 in 1959–60, 1,740 in 1960–61, 1,924 in 1961–62, 2,153 estimated for 1962–63). To take care of the expansion will require a far greater rate of increase; and the only place where we can hope to get staff in large numbers is from our own graduate schools. A few may be obtained from abroad, but it would be self-delusion to think that we shall not have to recruit and train most of them ourselves. With this consideration in mind, our task assumes a new aspect: it is not merely to develop general arts education for very large numbers of students; it is also to expand honour and graduate work vigorously and swiftly.

On the whole, then, the committee believes that it would be unwise to set a goal for the numbers of necessary staff lower than the ratio of 1:12 on the average, because—for the next few years at least—whatever economy in staff we may achieve in the colleges will be more than counterbalanced by the needs for increased graduate instruction in the universities. This means that in 1965–66, for 55,000 undergraduates and 4,000 graduate students, we shall need 4,900 staff members—about 2,400 more than we have now; and in 1970–71, for 91,000 undergraduates and 8,000 graduate students, we shall need 8,300 staff members—5,800 more than we have now (Appendix 5).

The role of graduate studies and research in the training of college and university teachers is not always clearly understood. Universities are not simply teaching bodies providing a continuation of high school instruction. Their role includes, besides teaching, the dissemination of existing knowledge and the development of new knowledge through the scholarly work of their staff. The university professor engages in research —he must, if his teaching is going to be authoritative. What is called research takes many forms: painstaking individual experimentation in a laboratory, or taking part in a co-operative project along with dozens of people, or reading and thinking about the works of some great man of the past and producing a new synthesis or a new insight; whatever the research involves, its purpose is to add to the total of man's knowledge of himself and his environment. Research usually gets published, sooner

or later, and the article or book is read by the leading authorities in that subject; their reception of it is an objective measure of excellence. Students may judge a man by his glibness, but the scholarly community judges him by the quality of his work. This is why, in this country, the M.A. is generally needed, and the Ph.D. preferred, for those who make their career in college and university teaching. In order to be any good to their students they have to be students themselves, not teachers only.

The total number of masters' and doctors' degrees in all fields conferred in the whole of Canada in 1960–61 was 2,779. Over the past five years the increase in doctorates has been insignificant (13); those in the humanities and social sciences have risen slightly, engineering has been almost steady, and the physical and biological sciences have dropped (Appendix 8). At the master's level the number of degrees has increased in all fields, again most noticeably in the humanities and social sciences—almost half of all the masters' degrees conferred last year were in the social sciences. In Ontario the largest graduate school conferred 606 degrees last year, and the total for Ontario is probably over 1,000, a little over one-third of the Canadian total. These figures do not look too alarming in the present context until one remembers that a great many of them represent advanced professional degrees in Social Work, Business Administration, etc., whose holders are more likely to practise than to teach; that there are many other calls on postgraduate degree holders beside university teaching; and that the lack of increase in postgraduate degrees in the sciences is sinister. What has been said of American graduate schools is becoming increasingly true of Canadian ones, that they "are grappling with a triple-headed monster—the research needs of the country, for teachers, for pure scientists, and for an almost limitless number of applied scientists in business, industry and government."

In the light of the foregoing, we recommend a "crash programme" in graduate studies, a virtual doubling of the graduate school enrolment in Ontario universities within the next few years. Recruiting for college and university teachers should not be left until the student's graduating year, but should begin in the early years. Co-ordination should be developed among the universities so as to share their library and laboratory facilities for graduate work and avoid unnecessary duplication of graduate courses or facilities. The summer months should be used for intensive graduate work, in the humanities as well as in the sciences. The M.A. programme should be reorganized to include more direct preparation for college teaching. The graduate programme should be tightened so as to shorten the time involved in completing the work for a graduate degree, which in the case of the Ph.D. often runs to eight or ten years.

However, the reason that people often take so long to get their graduate degrees is usually because they run out of money and have to

interrupt their graduate work and take full-time employment. The committee would like to emphasize that no sizable expansion of graduate work can take place unless the fellowships available are very greatly increased, both in value and in number. The present provision of Canada Council fellowships is so meagre that only one out of every four really excellent applicants can receive one; the National Research Council had 1,300 good applicants last year for the 700 fellowships they could afford to grant. We shall recommend below that a special per capita grant per graduate student be allocated to the universities operating graduate programmes, to provide for more generous fellowships and to help to cover the heavy additional investments in staff, books and equipment that the intensified graduate programme will entail. *We regard this as the first and most essential action of all those that must be taken to meet the approaching emergency.*

The committee realizes that this programme is a race against time, and that time may score a victory, in that it may prove simply impossible to get enough qualified teachers by 1965 and 1966. The committee is also conscious of the great and growing needs in the field of adult education, and believes that it would not be right for the universities to shelve that responsibility in their preoccupation with youth. But in view of the strain that the graduate programme will immediately impose on the staff, the committee believes that extension work will have to be done increasingly with the aid of television, videotape and other new media of communication, and recommends that the universities take this matter under advisement at once.

In this connection it has been suggested that television facilities for adult education might be established quickly enough to be used, temporarily, for full-time liberal arts education if it should prove impossible to build and staff new colleges in time to meet the crises of 1965 and 1966. This could not be a substitute for the building of colleges—the popular voice would demand the facilities for a more normal kind of higher education—but it would bridge the time-gap that may develop in the crucial years of this decade. The suggestion is that all the existing universities co-operate in the establishment of a large liberal arts college —"Ontario College"—which would offer a three-year general arts course from Grade 13, leading to the B.A. degree. The fee would be lower than university fees, but high enough to discourage dilettantes. The students would report to their nearest regional university in December, when the regular students were having their break; on each university campus there would be a staff of instructors, readers and student advisers, who would introduce the students to the campus and arrange for their periodical tutorial and/or laboratory sessions. Instruction in the various subjects would be televised from a central point. (The universities would

have to build and equip their own station, because the snippets of unpopular time available from the commercial stations would be hopelessly inadequate and unsatisfactory.) Instruction would be given by scholars seconded from the universities on a year's leave of absence. The students would have a time-table, and would watch the appropriate classes on television in their own homes during the week, do the required reading, and mail their written assignments to their instructor at the regional university. They would attend periodic seminars, and devices like language laboratories could be exploited to the full. In June the Ontario College students would come to the regional university campus for three months of tutorial and laboratory instruction, and sit their examinations early in September. Their holidays would be in October and November. Transfers into a regular university course for those who did particularly well in their first year or second year examinations would be in the discretion of the regional university, but the B.A. would be as genuine a degree as any other, and would make the holder eligible for any professional course for which the B.A. is a prerequisite.

This programme would demand of the students both determination and persistence. Admittedly they would have opportunities for consultation with staff, and a respectable amount of work in small groups, but there would be long weeks of solitary study, without the stimulus of daily contact with fellow-students or the relief of organized extra-curricular activities. It would not be an easy road to a degree; it would simply be an attempt to ensure that an opportunity for education of high quality will be available to all qualified young people of this Province, including those who through no fault of their own happen to be leaving high school in 1965 and 1966. It would give time for the strengthening of graduate work and the building and staffing of liberal arts colleges. It could be combined with extension work from the start, and would gradually move over into the field of adult education as the supply of staff for the universities and colleges catches up with the demand.

9. STRUCTURAL ORGANIZATION OF POST-SECONDARY EDUCATION

The committee noted that the undertakings of the Provincial Government in post-secondary education have changed radically in recent years, and have taken on a new complexity and importance. The committee had the impression that these activities have outgrown the arrangements by which they were traditionally administered. We therefore discussed, in general terms, the question whether a more co-ordinated administrative structure might not be better suited to this complicated area.

At the present time the responsibility for post-secondary education is divided among at least six Government departments—Education, Health, Labour, Agriculture, Mines, and Lands and Forests—and the Advisory Committee on University Affairs has the responsibility of advising the Government on matters bearing on the universities and colleges. The committee thought that its own existence as a committee, and the fact that it has been asked to do in a few weeks what should have been in hand for several years, was proof enough that the working of the present system leaves something to be desired. The members are sensible of what the Advisory Committee on University Affairs has already been able to accomplish for the welfare of education in general and the universities in particular, in the short time that it has been in existence; and they regard it as a most fortunate and thankworthy circumstance that so knowledgeable a person as the former Prime Minister of this Province is willing to dedicate his time, his insights and his wisdom to the Advisory Committee's work.

The committee discussed several reorganizational possibilities:

(1) The creation of a Ministry of Higher Education, responsible for all post-secondary education and for scientific research;

(2) The placing of all forms of post-secondary education under the Minister of Education;

(3) The extension of the scope of the Advisory Committee on University Affairs to include all forms of post-secondary education except the training of teachers;

(4) The establishment of another committee, parallel to the Advisory Committee on University Affairs, with responsibility for advising the Government on all the non-university forms of post-secondary education except the training of teachers.

The committee acknowledged that either of the first two alternatives would undoubtedly produce better co-ordination of educational activities, as is proved by the educational advances that have taken place in Russia under a Ministry of Higher Education. But both these arrangements would have the grave disadvantage of giving the Government direct control of higher education—a situation that runs counter to the whole tradition of higher education in the English-speaking world.

Either the third or the fourth scheme would facilitate co-ordination without imposing direct government control. If the third alternative were adopted, the work of the Advisory Committee on University Affairs—already arduous—would be greatly increased. The committee believes that, whether the third alternative is adopted or not, the Advisory Committee on University Affairs should be strengthened by the appointment of a vigorous person with considerable academic and administrative

experience as a full-time Executive Secretary; by the provision of a small full-time research and clerical staff for the Committee, on the model of the Research and Information Division of the Canadian Universities Foundation; and by the establishment of a sub-committee (or, in the case of the third alternative, three sub-committees) of persons with specialized knowledge, to whom the Committee could turn for detailed studies of intricate problems. In view of the magnitude and complexity of the problems facing the Government and the Advisory Committee on University Affairs, it is hoped that the Government will reconsider the composition of the Advisory Committee and enlarge its membership to include some wider representation from the academic world—i.e., some persons who have been, but are not now, actively engaged in university teaching and/or administration.

Under the third scheme the Advisory Committee, which would have become the "Advisory Committee on Post-Secondary Educational Affairs," would need to be able to call on the services of a sub-committee concerned with universities and colleges. We suggest that this sub-committee might be composed of the presidents of the Ontario universities. There will be more occasions in the future when collective action on the part of the universities is necessary, and more activities in which liaison and co-ordination of effort among the universities will be essential; the presidents should have a formally constituted body, along the lines of the Committee of Vice-Chancellors and Principals in the United Kingdom. This body would not in any way usurp the functions of the Advisory Committee; it would be a consultative group, whose existence would facilitate the work of the Advisory Committee.

A second sub-committee would be concerned with technological education, and might consist of the heads of the technological institutes and representatives of business and industry. In this field, as we have already noted, the lack of direction and co-ordination is serious. The third sub-committee would be concerned with the health services, and might include representation from the faculties of medicine, dentistry and pharmacy, schools of nursing, and the paramedical field.

Under the fourth scheme, the Advisory Committee on University Affairs would be strengthened in the ways that we have suggested, but it would be responsible only for the universities and colleges. A parallel Advisory Committee would be appointed to advise the Government on the other forms of post-secondary education and to co-ordinate and develop policies. This Committee also should be fortified with a highly qualified person as full-time Director, and should have a small staff of its own. It would have more executive functions than the University Affairs Committee; it would be charged with the development of policy and the direction and co-ordination of efforts in the whole field of post-

secondary education except university education and teacher training. In view of the close relation between technological and technical education, this committee should have some jurisdiction over technical education as well. It should have the assistance of the sub-committees on technology and health that have been described above.

We recommend that the authorities give consideration to implementing either the third scheme suggested or (preferably) the fourth. We believe that, in the order of priorities, first place should be given to the enlargement and strengthening of the Advisory Committee on University Affairs. If the universities are to embark on an immediate and unprecedented expansion, and to assume responsibility for new colleges, it will be essential for them to be assured of the funds they may expect from the Government for several years in advance, not simply year by year as in the past, and this will increase the work of the Advisory Committee. Then, too, the entire university and college situation should be reviewed thoroughly by the Advisory Committee in two or three years' time.

10. FINANCING OF UNIVERSITIES AND COLLEGES

The committee noted that in 1960–61 the sources of revenue for the Ontario universities were as follows: students' fees, 29%; Provincial Government, 28%; Federal Government, 16%; assisted research funds, 14%; gifts and grants, 3%; endowment income, 3%; miscellaneous, 7% (Appendix 6).

It is obvious that the only major source of funds, apart from governments, is fees. The committee doubts whether the income from students' fees should be made to keep pace with the very large increases in university costs that will take place during this decade. It would be *possible* to put the fees up to three or four times their present level, and thereby keep out a substantial part of the projected increase; just as it would be *possible* to raise the admission requirements of the universities to extraordinary heights and achieve the same result; but the committee cannot with a good conscience recommend either of these courses. Consequently the committee is forced to the conclusion that universities must look to government funds for an increasing proportion of their operating and capital costs.

It is recognized, with appreciation, that the universities have not been subjected to government interference in the past; and it is assumed that in the future, even though the universities will be more dependent on government support than ever before, the same attitude will prevail, and academic freedom will be maintained. The nature of the freedom claimed by universities as basic to their success has been well described by Sir Keith Murray. Essentially what is claimed is freedom of thought,

and this requires three ancillary freedoms. "The first of these is freedom to make their own appointments to teaching posts, since otherwise political orthodoxy might become a condition of academic advancement and the pursuit of truth might be distorted. The second is freedom from external control over what is taught, which means freedom from interference in teaching, examinations and the award of degrees. The third is freedom from external control over admissions, so that the universities can select those most capable of benefit from their courses, without regard to creed or colour." It is true that the universities depend upon public funds now as never before; it is also true that the public depends upon universities now as never before. At the present time the universities are being asked to recognize their public responsibilities and to make university education available to very large numbers of students. Without money, they will be unable to take in more students. Without freedom, what they make available to the students will not be university education.

10.1 Operating Costs

The combination of rising unit costs and exploding numbers produces a sombre picture of the financial burdens that lie ahead. To some extent the future trends are not foreseeable: costs will rise sharply if inflationary pressures rise, less sharply if inflation is controlled. The greatest item of cost is academic salaries, and these depend upon a number of variables, including cost of living, competition from other employers, and high school salary scales. We will not be able to secure and hold staff without paying competitive salaries, and the competition may be keen. For example, the 150% tax reduction for industries for research activity that was recently announced by the Honourable Mr. Fleming will encourage the development of industrial research in Canada—an undoubted benefit —but it will also increase the competition from industry for scientific staff which the universities will have to meet.

The committee has not the resources to make a detailed prognostication of the universities' operating costs. In a more or less mechanical way we can say that, if one accepts the numbers projected in Estimate 5 and assumes that the trend of costs in the last five years will continue at the same rate, the operating costs of universities will more than double in the next four years, and in the following five years they will at least double again; and that a larger proportion of these costs than heretofore will have to be borne by the Provincial and Federal Governments. (See Appendix 7.)

The committee was concerned to find areas where economies in university operation might be made without damage to academic standards. In discussing possible ways of controlling duplication of effort among the

universities, the committee distinguished between courses of study that must, in a fully developed educational system, be offered somewhere, but that appeal to only small numbers of students, and courses of study that are an integral part of scientific or humanistic education and must be offered by most or all institutions of higher learning. East Asiatic Studies and Public Administration are examples of the first kind of course, History and Biology of the second. The committee felt that the first kind should be confined to one university (as they are at present), so that expensive staff and esoteric library facilities would not be duplicated. Moreover, in fields such as physics which must be covered everywhere at the undergraduate level, highly specialized graduate work and research involving extremely expensive installations need not be carried on at all universities. A certain informal division of labour along these lines already exists, and should be preserved. The committee suggests that the Ontario universities should form themselves into a body analogous to the National Conference of Canadian Universities, and work out areas of specialization and means of co-ordinating their efforts. The committee learned that different universities are in some cases running extension centres in the same town; this situation would not have arisen if there had been better liaison and co-ordination in the use of university resources.

The committee is aware of the improvements in efficiency that can be effected by the widespread use within universities of the various kinds of audio-visual aids. It recognizes that, however uncongenial the new methods are to the traditionally-minded, their proliferation is inevitable in an age when capital is, relatively speaking, more abundant than skills. Up to the present time, the experience of universities with language laboratories, closed-circuit television, programmed learning, videotaped lectures, etc., seems to have resulted more in variation and enrichment of the offerings than in any notable savings in costs. For this reason we hesitate to predict that the increasing use of such mechanical devices will produce operational economies in the next four to eight years. We believe that universities should be in the forefront of experimentation with audio-visual aids. Doubtless the economies, as well as the possibilities, inherent in these tools of learning will show up as time goes on, but it would be rash to prophesy at this point that in x years they will enable us to dispense with y professors.

The committee thinks that professional training in some fields should be examined carefully to see if the educational requirements are realistic in terms of the work to be done by the professional practitioner. For example, the suggestion was made that a course in Social Work consisting of two years of Arts and two years of Social Work would provide the profession with the kind of person they need in large numbers. The com-

mittee hopes that professional groups will examine themselves to see if their attempts to raise educational standards and achieve professional status have resulted in some people being over-educated for the work they will perform. If we can avoid the mushrooming of professional degrees, particularly advanced degrees, that has taken place in the United States, we should do so.

10.2 Programme for Graduate Work

In order to achieve a doubling of graduate enrolment there will be a need, as was pointed out earlier in this report, for an additional per capita grant-in-aid earmarked for graduate studies. The committee discussed with great care the situation of the graduate schools and the resources available from the National Research Council and other sources, and concluded that in order to meet the present emergency the special support for graduate fellowships and graduate school facilities would have to be of the order of $6,000,000, rising to $12,000,000 in 1965, or approximately $2,000 per graduate student.

The offering of graduate programmes will have to be limited in some way to the institutions that have sufficient resources in staff, library facilities, and equipment to handle advanced work in arts and science. The whole subject of differential costs requires a great deal of study: we know that graduate education is more expensive than undergraduate education, but not how much more; we know that special consideration should be given to young institutions that have to build up from the ground their stocks of books and equipment, but not how much special consideration; we think that some of our greatest expenses are incurred in courses such as dentistry and medicine, and that these should have more support from the Federal Department of Health, since its activities depend upon their output, but we are not in a position to back up our impressions with facts. We are, however, convinced that the special subsidy to attract students into graduate work is an absolute necessity, for the sake of the entire economic and social order. Without it, we cannot hope to look after the undergraduate students who are coming to our doors, and this may amount to condemning them to lack of opportunity and lack of employment. With it, we have a chance of success.

10.3 Capital Costs

The committee observed that the report made by the Ontario Department of Economics in 1958 had forecast capital costs of universities at the rate of $5,000 per student. McMaster estimates its capital programme, not including residences and exclusive of the cost of land, at approximately $42,500,000 for an additional 5,800 students, or a capital cost of $7,350 per student. Toronto's $105,000,000 building programme (includ-

ing the cost of land, and of residences) for an expansion of enrolment from 10,700 to 23,400 comes to over $8,000 per student. At the University of Waterloo, the projected capital expense to 1963 is $10,000,000 for a proposed enrolment of 2,000, or $5,000 per student, but this does not include a library building, or residences, or various desirable but not indispensable items such as a students' union; if these were included, $7,000 per student would be a more realistic figure.

Taking rising costs into consideration, the committee believes that the capital investment to be contemplated by 1965 will be of the order of $150,000,000, and might be as high as $175,000,000.

The committee is aware of the possibilities for economy in the planning of academic buildings. Waterloo is an excellent example of the combination of economy, efficiency and attractiveness. Multiple-purpose laboratories are being developed at a number of institutions, with great savings in the utilization of space. There is room for improvement in the use of existing space; a system of central classroom and laboratory allocation should be the norm.

There is great variation in the use now being made of the campus facilities during the summer months by different universities. At the University of Ottawa, with a summer school of over 3,000, there is full utilization; at Toronto, with about 5,000, there is under-utilization. A great deal of graduate work is now done in the summer in science, engineering and medicine, rather less in the humanities and social sciences. As indicated earlier, the committee proposes that the programme of graduate work should be planned so as to make full use of summer facilities. In view of the staff situation described above, either the quarter system or the addition of a third term at the undergraduate level would be impossible to implement at this time. These expedients depend upon the immediate availability of qualified staff in large numbers; otherwise, they destroy the scholarly and research potential of the universities. During a crisis with recognizable limits, such as the influx of veterans, university staff can carry exorbitant teaching loads for a limited period without too much damage, but the present crisis will not subside until the 1980's, if then. In any case, the facilities on campus will be in heavy demand in the summer for the intensified graduate programme, and—if the Ontario College scheme is developed—for large numbers of those students taking their work on campus at that time of year.

One of the important problems in the development of adequate facilities is the provision of libraries. The committee believes that there is a strong case for treating the cost of library books for the new institutions in the same way that the cost of laboratory equipment is treated, i.e. as a capital expenditure. A library building without books, someone has pointed out, is as useless as a building to house a cyclotron without

the cyclotron; no institution would put up a cyclotron building without being assured of the capital funds to purchase the cyclotron to go in it, "nor would it be considered satisfactory to add each year $40,000 worth of cyclotron parts."

The committee sees the possibility of substantial economies in the provision of libraries. There is general agreement on what constitutes an adequate undergraduate library. The "Lamont list" (approximately 90,000 volumes) is a model that is used in the United States, and Canadian librarians are ready to prepare a version of the Lamont list appropriate to Canada. If an Ontario Bibliographic Centre were immediately established, it could order and catalogue the basic list that will be required for new institutions, and fill the gaps in the holdings of recently-founded institutions; it could also establish, and provide, the basic library requirements for technical institutes and Teachers' Colleges. Since the costs involved in processing a book approximately equal its list price, the savings to be effected by co-ordinated ordering and cataloguing are immense. We recommend that consideration be given to the immediate establishment of such a centre.

11. CONCLUSION

The committee have made many recommendations in this report, and urge that all of these be studied carefully. They suggest, however, that priority be given to the consideration of the following recommendations:

A. Staff (pp. 18–22)

The committee is convinced that the provision of well qualified staff in sufficient numbers is the key to the problem of the development of post-secondary education in Ontario. They therefore recommend that the highest priority be given to the expansion of graduate studies in Ontario universities, and in particular that a special fund be created for the expansion of graduate programmes (p. 28); and that the problems of recently founded universities in developing graduate work receive special consideration.

B. Expansion of Facilities for University Education (pp. 8–9, 13–18)

(*a*) *Arts and Science*

The greatest need for student places is in Arts and Science courses. Some of this need can be met by a still further expansion of the existing universities. The remaining places must be found by creating new institutions.

The committee recommends:

(1) That the figures for the expansion of existing universities given in Appendix 4 be accepted in principle as targets, subject to the provisos mentioned in this report, particularly those relating to finances and staff, and subject also to confirmation by the Boards of Governors of the universities (pp. 8–9, Appendix 4).

(2) The establishment of at least three new liberal arts colleges, offering a three-year general course in Arts and Science from Grade 13, to be established at the following locations in association with the following universities:

St. Catharines or Welland (McMaster University)
Toronto, eastern extremity (University of Toronto)
Toronto, western extremity (University of Toronto)

The above-mentioned institutions must be ready to accept their first students by September, 1964, at the latest, and must be prepared for rapid growth (p. 17).

(3) Shortage of teaching staff may make the time-table in (2) above too ambitious. The committee therefore suggest the desirability of looking at some of the alternative possibilities discussed on pages 21–22.

(*b*) *Professional Faculties and Schools*

The committee recommends against the establishment of any further comprehensive multi-faculty universities in the present decade. They recommend, however, the establishment of one further Faculty of Medicine, one Faculty of Dentistry and one Faculty of Pharmacy at existing Ontario universities, in centres where adequate clinical facilities are available. These new faculties should produce their first graduates no later than June, 1970 (p. 6).

C. Financial Support (pp. 25–30)

The committee's recommendations will involve the Provincial Government in greatly increased financial contributions to university and other forms of post-secondary education. So far as the universities are concerned, the committee urges that the Provincial Government assure the universities now of the necessary immediate and continuing financial support. In particular, the committee suggests that the scale of the provincial grants to each university, both for operating and capital costs, be guaranteed on a three- to five-year basis, to permit the required degree of planning. The committee also suggests two ways of reducing the financial burden on the Province: the establishment of a Bibliographic Centre (pp. 29–30) and the recognition by the Federal Government that it should pay a larger share of the cost of educating overseas students (p. 8).

D. Organizational Structure (pp. 22–25)

The committee urges the importance of achieving the most effective organizational structure for the development of post-secondary education in Ontario. They welcome the establishment of the Advisory Committee on University Affairs. They recommend an increase in the membership, resources and staff of that Committee. In particular, they urge that it is important that that Committee have a competent full-time executive secretary and secretariat, and an advisory sub-committee of university presidents. They recommend that consideration be given to either including other forms of post-secondary education in the terms of reference of the University Affairs Committee, or else establishing a parallel committee responsible for non-university post-secondary education; and, in either case, appointing sub-committees on technological and technical education and on the health services (pp. 24–25).

E. Technological Training (pp. 11–13)

The committee is convinced that the requirements of the Province demand a much increased development of technological training. They recommend that planning be started immediately to provide a minimum of 18,000 student places in technological institutes in the Province by 1970, and that simultaneously a major study of the technological and technical training in the Province be undertaken.

F. School Curriculum (pp. 16–17)

The committee is convinced that it is pointless to take steps to improve and expand post-secondary education without also ensuring that the entire school programme is as sound as may be. They therefore recommend the encouragement of systematic study of the curriculum in the elementary and secondary schools.

Claude Bissell, *Chairman*
Harold Bennett
H. S. Braun
J. A. Corry
F. A. DeMarco
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APPENDICES

APPENDIX 1

PROJECTED UNIVERSITY FULL-TIME UNDERGRADUATE ENROLMENT
(1961–62 to 1971–72)

ESTIMATE 5: Based on assumption that percentage of 4-year Grade 13 enrolment enrolled will remain at the present level of 50 per cent.

University Year	Number	Percentage	
		18–21	Gr. 13
1961–62[1]	31,800	9.36	51.70
1962–63[1]	35,100	9.64	49.80
1963–64	40,400	10.47	50.00
1964–65	46,300	11.42	50.00
1965–66	54,500	13.02	50.00
1966–67	64,500	14.86	50.00
1967–68	73,900	16.36	50.00
1968–69	82,300	17.62	50.00
1969–70	88,200	18.38	50.00
1970–71	91,400	18.74	50.00
1971–72	94,200	19.19	50.00

ESTIMATE 6: Based on assumption that percentage of 4-year Grade 13 enrolment enrolled will increase to earlier level by 1967–68 and reach approximately 60 per cent by academic year 1971–72.

University Year	Number	Percentage	
		18–21	Gr. 13
1961–62[1]	31,800	9.36	51.70
1962–63[1]	35,100	9.64	49.80
1963–64	41,100	10.66	50.90
1964–65	48,100	11.86	52.00
1965–66	57,900	13.83	53.10
1966–67	69,900	16.10	54.20
1967–68	81,700	18.08	55.30
1968–69	92,800	19.87	56.40
1969–70	101,400	21.13	57.50
1970–71	107,100	21.96	58.60
1971–72	112,400	22.90	59.70

[1]University enrolment estimates based preliminary and projected enrolments reported by major universities.

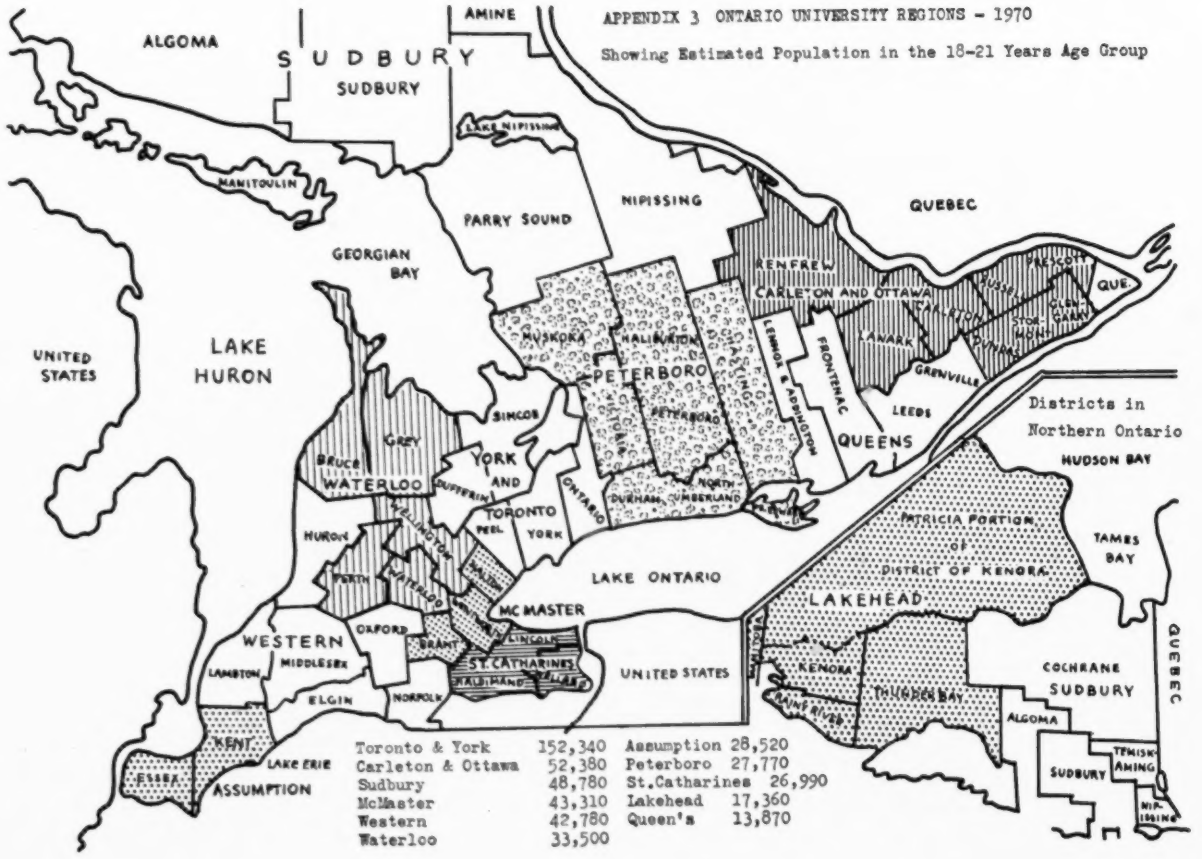
APPENDIX 2

ENROLMENTS IN ONTARIO UNIVERSITIES IN VARIOUS FIELDS

	1955–56	1957–58	1958–59	1959–60	1960–61	1961–62
Arts and Science	7,775	10,055	11,473	12,375	14,194	17,351
Agriculture	396	464	522	553	625	693
Architecture	191	223	198	157	196	193
Business	1,184	1,282	1,160	1,263	1,451	1,493
Dentistry	427	413	427	475	525	609
Education	403	285	431	535	602	763
Engineering	3,546	4,143	4,327	4,433	4,338	4,378
Forestry	87	73	76	89	97	99
Household Science	203	236	253	248	299	327
Library Science	40	43	53	68	96	109
Law	1,104	1,234	1,219	1,203	904	913
Medicine	1,663	1,676	1,696	1,673	1,699	1,703
Nursing	641	681	705	630	753	814
Pharmacy	352	324	321	332	377	373
P. and H.E.	249	264	326	411	490	547
Social Work	134	90	92	107	156	154
Veterinary Medicine	273	278	264	287	319	322
Graduate	1,452	1,826	2,037	2,211	2,599	2,903

APPENDIX 3 ONTARIO UNIVERSITY REGIONS - 1970

Showing Estimated Population in the 18-21 Years Age Group



Toronto & York	152,340	Assumption	28,520
Carleton & Ottawa	52,380	Peterboro	27,770
Sudbury	48,780	St.Catharines	26,990
McMaster	43,310	Lakehead	17,360
Western	42,780	Queen's	13,870
Waterloo	33,500		

APPENDIX 4

ENROLMENT GOALS OF THE EXISTING ONTARIO UNIVERSITIES AND COLLEGES
(Post-Grade 13 Students)

	1961–62		1965–66		1970–71	
	Under-graduate	Graduate	Under-graduate	Graduate	Under-graduate	Graduate
Assumption	1,100	60	3,400	200	4,500	400
Carleton	1,300	30	3,200	200	6,000	500
Lakehead	100	—	500	—	1,000	—
Laurentian	300	—	1,000	—	2,000	—
McMaster	1,700	170	3,500	400	7,000	700
Ottawa	2,200	490	5,000	500	7,000	1,000
Queen's	3,000	280	4,500	400	5,000	600
Toronto	9,700	2,200	13,000	3,000	16,000	5,000
Waterloo	1,000	40	3,000	200	6,000	500
Western Ontario	3,400	400	5,900	600	8,000	1,000
York	200	—	2,300	—	7,000	300
O.A.C.-O.V.C.	1,200	110	1,500	150	2,000	200
Osgoode Hall	400	—	500	—	600	—
Waterloo Lutheran	800	—	1,200	—	1,500	—
Other	300	—	500	—	700	—
	26,700	3,780	49,000	5,650	74,300	10,200
Less Toronto (part-time)				1,500		2,000
				4,150		8,200

The figures for 1965–66 and 1970–71 are estimates made in May, 1962, and will be subject to periodic revision.

APPENDIX 5

NUMBERS OF FULL-TIME STAFF REPORTED TO ONTARIO GOVERNMENT, SEPTEMBER, 1961

	Carleton	Essex C. (Ass.)	Lakehead	Laur.	McM.	Ott.	Queen's	Tor.	Waterloo	West.	York	Total
1959–60	76	47	10	—	112	162	208	650	37	209	—	1,511
1960–61	77	53	9	29	118	177	214	739	91	225	8	1,740
1961–62	82	62	15	40	143	205	231	762	109	255	20	1,924
Estimated, 1962–63	98	67	19	46	174	221	246	828	122	297	35	2,153

Total full-time staff, including staff for new institutions, that will be required on the basis of the present average staff-student ratio, assuming undergraduate enrolments as in Estimate 5 and graduate enrolments as in Appendix 4:

1965–66.....4,880
1970–71.....8,300

APPENDIX 6

ANALYSIS OF STATEMENT OF OPERATING INCOME AND EXPENDITURE OF ONTARIO UNIVERSITIES AND COLLEGES
For Financial Years Ended in 1961

	Ontario (14 Universities)	
	Amount	%
INCOME		
1. Student Academic Fees	$14,506,915	29.04
2. Gifts for General and Specific Operating Purposes (other than Research) from:		
(*a*) Corporations	209,473	.42
(*b*) Foundations, Associations, etc.	326,407	.65
(*c*) Individuals and Bequests	100,296	.20
(*d*) Joint Funds including Campaigns	48,526	.10
(*e*) Value of staff supplied by Religious Orders without charge	—	—
(*f*) Other sources	681,102	1.36
Total Gifts	1,365,804	2.73
3. Receipts from Services to outside Organizations	1,111,864	2.23
4. Miscellaneous	957,575	1.92
5. Endowment Income (net) for:		
(*a*) General purposes	1,333,157	2.67
(*b*) Specific purposes (other than Research)	393,350	.79
Total Endowment Income	1,726,507	3.46
6. Current Government Grants:		
(*a*) General purposes: (1) Federal	7,973,301	15.97
(2) Provincial	14,142,000	28.31
(3) Municipal	338,361	.68
Total Grants for general purposes	22,453,662	44.96
(*b*) Specific purposes (other than Research):		
(1) Federal	140,189	.28
(2) Provincial	601,959	1.21
(3) Municipal	26,708	.05
Total Grants for specific purposes	768,856	1.54
Total Government Grants (except for Research)	23,222,518	46.50

APPENDIX 6 (continued)

	Ontario (14 Universities)	
	Amount	%
INCOME (continued)		
7. Total Research Funds	7,050,403	14.12
8. Net Surplus on Ancillary Enterprises	—	—
Total Ordinary Income (items 1–8)	49,941,586	100.00
9. Transfers from Reserves, Deferred Government Grants and other Non-Current Funds:		
(*a*) Deferred Federal Grant	327,965	
Total Transfers	327,965	
10. Ancillary Enterprises:		
(*a*) Income	4,872,925	
(*b*) Less: Net Surplus as shown above	—	
Ancillary Enterprises: Net Income	4,872,925	
TOTAL INCOME	55,142,476	
DEFICIT FOR THE YEAR	487,019	
TOTAL	55,629,495	

APPENDIX 6 (continued)

	Ontario (14 Universities)	
	Amount	%
EXPENDITURE:		
12. Academic (or Instruction)	$30,379,727	63.77
13. Assisted Research (Contra of Total of 7 above)	7,050,403	14.80
Total of Academic and Research	37,430,130	78.57
14. Administration	2,432,036	5.10
15. Plant Maintenance	5,465,993	11.47
16. Scholarships, Bursaries, Prizes	462,764	.97
17. Miscellaneous	1,649,304	3.46
18. Net Deficit on Ancillary Enterprises	202,712	.43
Total Ordinary Expenditure	47,642,939	100.00
19. Extraordinary Operating Expenditures:		
(*a*) Expenditure on and/or provision for major repairs, alterations, and other capital costs not included under normal plant maintenance	712,182	
(*b*) Depreciation if charged in the accounts but excluding that under ancillary enterprises	349,069	
(*c*) Interest and sinking fund charges	833,703	
(*d*) Other	1,218,677	
Total Extraordinary Operating Expenses	3,113,631	
20. Ancillary Enterprises:		
(*a*) Expenditures	5,075,637	
(*b*) Less: Net Deficit as shown above	202,712	
Ancillary Enterprises Net Expenditure	4,872,925	
TOTAL EXPENDITURE	55,629,495	
21. SURPLUS FOR THE YEAR	—	
TOTAL	55,629,495	

NOTES

1. Universities and Colleges included are: Assumption, Carleton, Huron, McMaster, Ottawa, Queen's, St. Michael's, Toronto, Trinity, Victoria, U. of Waterloo, Waterloo L.U., Western Ontario, York.

2. The amounts of gifts, grants and assisted research funds shown as income are the amounts taken up as income within the year and are not necessarily equal to the actual amounts received during the year.

Canadian Association of University Business Officers Committee on Accounting and Statistical Research
December, 1961

APPENDIX 7

PROVINCIAL GRANTS TO UNIVERSITIES
Fiscal Year 1962–63

	Maintenance Grants ($000's)	Capital and Special Grants ($000's)	Total ($000's)
University of Toronto	10,750	7,100	17,850
for Royal Ontario Museum	1,050	—	1,050
for Ontario College of Education	1,475	—	1,475
University of Western Ontario	1,650	2,000	3,650
Queen's University	1,650	2,000	3,650
McMaster University	1,425	2,000	3,425
Carleton University	900	2,000	2,900
University of Waterloo	850	1,800	2,650
Essex College (Assumption University of Windsor)	650	1,750	2,400
University of Ottawa— for instruction in Medicine and the Sciences	900	1,250	2,150
York University	700	2,000	2,700
Laurentian University of Sudbury	350	125	475
Lakehead College of Arts, Science and Technology	185	250	435
Ontario College of Art	225	—	225
Osgoode Hall Law School	150	150	300
Special Grants for Archaeological Research	10	—	10
McMaster University— for the Royal Botanical Gardens	100	—	100
	23,020	22,425	45,445

APPENDIX 8

EARNED DOCTORATE DEGREES GRANTED BY CANADIAN UNIVERSITIES

Field of Study	1956–57	1957–58	1958–59	1959–60	1960–61
Biological Sciences	86	90	64	74	81
Engineering	12	17	19	14	19
Humanities	41	47	61	48	59
Physical Sciences	116	88	101	119	101
Social Sciences	33	27	39	24	45
Not specified	4	3	—	2	—
Total	292	272	284	281	305

DBS Daily Bulletin, March 21, 1962

EARNED MASTER & EQUIVALENT LICENCE DEGREES GRANTED BY CANADIAN UNIVERSITIES

Field of Study	1956–57	1957–58	1958–59	1959–60	1960–61
Biological Sciences	198	207	209	253	270
Engineering	101	128	159	183	217
Humanities	321	325	308	416	492
Physical Sciences	178	163	197	242	288
Social Sciences	663	678	828	1,014	1,194
Not specified	39	11	9	11	13
Total	1,500	1,512	1,710	2,119	2,474

DBS Daily Bulletin, April 4, 1962